bear it very well, and no trouble of digestion is occasioned; on the contrary, it is a valuable remedy in some forms of gastric catarrh. Moreover, other disinfectant gargles (prepared with carbolic and salicylic acids) for the oral and pharyngeal cavities, were adopted in this and in the other cases. Against the fever, I administered salicylate of soda, and in one of the later cases, salicylic acid. Benzoate of soda was given in doses from a drachm and a half to three drachms daily. I have not seen any disagreeable effects follow its administration. Some of the patients who had received ten-grain doses three or four times daily as a prophylactic, observed that it improved their appetite, and that they became stronger under its use. They thought, therefore, that it acted as a tonic.

DIPHTHERIA AND MILK-SUPPLY.

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IN a note in this JOURNAL on the papers of Mr. Power and Mr. Smee, it is very justly observed that, as far as the present evidence goes, "the whole theory is very much in the air as to the connection of the epidemic in North London with any other modes of pollution of milk than those by air and water", and one could not but contrast the scientific caution of the paragraph with the assertion of a contemporary that "the only possible conclusion was, that the milk derived its morbid potency from the animal itself".

That the probability of a causal connection between the milk-supply and the diffusion of infection in this epidemic is very great, is of course beyond cavil; but, admitting even the dissemination of diphtheria by milk to be a fact as incontrovertible as the propagation of enteric or scarlet fever by that medium, I contend that the milk-pail must be a rare and exceptional vehicle for diphtheria contagion.

Many years have gone by since the spread of scarlet and typhoid fevers in this way was pointed out by Dr. Taylor of Penrith; and, although diphtheria epidemics by the hundred have been investigated by competent observers, naturally on the *qui vive* for the discovery, there has not been recorded, so far as I am aware, until now, a single epidemic in which the infection of diphtheria has been spread by milk.

There is another strong *à priori* piece of evidence that the dairy is a very unusual focus of diphtheria. It is, that the incidence of diphtheria is not upon the milk-drinking portion of the juvenile population. Perhaps the best-established feature in the natural history of this disease is the fact that the localities chiefly invaded are purely rural; towns of all sorts enjoying a comparative but remarkable immunity. But it is in the towns that the milk-drinkers as a body are found. The bulk of the population in the agricultural districts, where diphtheria holds its strongest sway, are, as a rule, not milk-drinkers. Milk, brought to the door of the urban-dwelling artisan, is, to the agricultural labourer, an article of food rare and difficult to get. Moreover, in these self-same rural districts, the brunt of the epidemic falls on the non-milk-drinking children of the poor, but passes over the milk-drinking families of the well-to-do. Such, at least, has been my experience, both in my reading and in a score or more of widely diffused epidemics which I have personally observed. It is the parish school which spreads the infection, not the milk-supply.

I have made these remarks because I now find a tendency among the laity to rush to the conclusion that diphtheria is commonly, if not always, carried about in the milk-pail. The observations which I have next to offer refer to the, in my opinion, not less hasty assumption that the "only possible conclusion in the case of the North London epidemic is, that the milk derived its 'morbid potency' from the cow itself".

It is asserted, rather than by Mr. Power, whose paper is admirably cautious, that the possibility of contamination by infected air or water, well-established in the case of scarlet and enteric fevers, is disproved in the case of this diphtheria epidemic. But, considering the part which, as evidence from all sides shows, trivial and often unnoticed cases play in the spread of diphtheria, the difficulty of such disproof is enhanced a hundredfold. Nor does it follow that such contamination need be recent or repeated. There is circumstantial evidence, and some positive proof, that certain contagia are capable of self-propagation in suitable media, in a manner external to, and independent of, the animal body. Milk is a medium which, from its composition and from other considerations, might be expected to afford an excellent nidus for the multiplication of some disease-germs. It appears to me then, that, besides the theory of origin from the cow, there is this possibility to be considered in connection with the North London epidemic; namely, that an accidental inoculation, as, for example, by a light sputum from some slight case, never dreamed of as diphtheria, might,

long before the outburst of the disease, have supplied a germ which, multiplying in a congenial soil, infected the dairy plant and milk. I do not say that this is probable; I only put it forward as a suggestion to show how difficult a matter it may be to absolutely exclude the possibility of what I may call the ordinary sources of zymotic infection in milk. Whatever the cause of diphtheritic infectivity of milk, however, if it be some obscure and fortuitous inoculation such as I have suggested, it must be unusual; or, if it be that the virus is derived from some antecedent disease of the cow, then, for the reasons stated in the first part of this paper, that disease is probably uncommon, or has but seldom this imputed quality of transmitting a diphtheritic infection through the milk.

THE PROPAGATION OF DIPHTHERIA BY MILD CASES AND DISGUISED COMBINATIONS.

By E. HOLLAND, M.D., M.R.C.P.,
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THREE years ago, a suburban school had been broken up from alleged scarlatina, and two of its pupils, supposed to be in health, after a week at home, were received into a large school in St. John's Wood. All went well for a week, when a French pupil, who slept with the new pupils, failed with decided scarlatina, and we found that the two new pupils, though doing ordinary school duties, had a nasal discharge and labial excoriation (attributed to cold), and that they were pale, asthenic, and a little feverish. It was also ascertained that they were strumous and had habitual rhinorrhœa, and that the discharge was only a little increased, and had passed unheeded. During the second week, the pupils fell ill in rapid succession, to the number of twenty-four or twenty-five, and the school was broken up. The invalids presented every conceivable variety of diphtheria and of scarlatina with and without rash. A was a typical case of scarlatina, with the usual throat and skin manifestations and subsequent desquamation; B was similar, *plus* limited false membranes in the pharynx; C was equally typical of recognised diphtheria, with false membranes, albuminuria, sequential pallor, and paralysis, but with no discoverable rash; and these varieties presented such a progressive fusion in their protean combinations that I regarded the diseased states as modifications of one process, and the evolution of a similar germ in dissimilar pabulum.

Dr. A. considered that the cases were scarlatinal; Dr. B., that they were diphtheritic; and Dr. C., that they were only cases of the "sore-throat that was about". It was my lot to inspect all the cases, and to follow the day-pupils to their homes; and I know the infection was spread broadcast in St. John's Wood, and, from the mild phases having been improperly interpreted, many a sorrowing *cortège* went shrouded to the grave. Two of my children brought the infection home, where eight suffered. The eldest, who had previously had scarlatina, resisted well, and were not in bed a day; the youngest two had malignant diphtheria as bad as could be short of actual destruction; they had no rash, but false membranes through the pharynx, nose, and mouth, albuminuria, sequential pallor, paralysis, and quasi-idiocy; and three years of careful treatment has scarcely restored their pristine vigour.

Here, then, we have an illustration of children only a little unwell, able to do their school-duties, with no local disease sufficient to attract the attention of friends, having, in fact, a slight nasal discharge only, and that unheeded; visiting and kissing in happy innocence, and yet imparting to confiding friends one of the most disastrous and to be dreaded of communicable diseases. Surely, it cannot require much effort to conceive the possibility and probability of diphtheria being as easily conveyed to a palace, when in disguise, as into the dormitories of a well appointed school or into the circle of home, especially when children abound and affection abounds, as in the princely home of Darmstadt.

COMPLETE TRANSPOSITION OF THE VISCERA OF THORAX AND ABDOMEN.

By STEPHEN MACKENZIE, M.D.,
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ON April 1st, 1878, I saw, in consultation with Dr. Dixon of Victoria Park Road, a male child aged sixteen months, suffering from rickets and bronchopneumonia. On proceeding to examine the chest, which was fairly well formed, no cardiac pulsation was visible in the ordinary position; and, on laying the hand on the thorax, the heart could not be felt beating in its usual place. Further examination revealed the impulse of the heart to the right of the sternum, between the fifth and sixth